

Christopher J. D. POMFRETT, *et al.*
Serial No. 10/553,745
December 8, 2010

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

The Examiner's finding of allowable subject matter at dependent claims 24 and 25 is appreciatively noted. Dependent claim 24 has been revised to be in self-standing independent format above and, since claim 25 already depends from claim 24, it is presumed that both claims 24 and 25 are now in fully allowed status.

The Examiner is thanked for suggesting (at page 28 of the last office action) an interview to speed full allowance of this application. If there is any remaining issue after consideration of this response, it is requested that the undersigned be telephoned for a prompt interview and resolution of any such remaining issue.

Attention is directed to the attached Second Dr. Pomfrett Declaration Under 37 C.F.R. §1.132, which provides factual basis for much of the following remarks.

Given the fact that the Examiner has explicitly indicated allowable subject matter at claims 24-25 and the fact that there is no longer any detailed description to support any rejection of these claims, it is assumed that the initial statement of rejection found at page 3 of the outstanding office action includes a typographical error insofar as it includes claims 24 and 25.

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Assuming that to be the case, then the rejection of claims 22, 23, 26, 28, 33, 36, 38-40, 42 and 45 under 35 U.S.C. §103 as allegedly being made “obvious” based on Boone ‘142 in view of newly cited John ‘372 and John ‘335 is respectfully traversed.

The Examiner’s own discussion of Boone does not assert that Boone teaches collection of post-stimulus responses after a preselected delay. Similarly, no such assertion is made for earlier and still cited John ‘335.

The Examiner, however, asserts that newly cited John ‘372 does teach collection of post-stimulus evoked signals after a preselected delay. Indeed, the Examiner asserts that the John ‘372 preselected delay is set to collect data from the nervous system of interest – e.g., so as to selectively monitor activity in different portions of the brain – which the Examiner apparently equates to a “neurophysiologic model”. For reasons explained in more detail below (and in the attached second declaration under 37 C.F.R. §1.132 by Dr. Pomfrett, one of the co-inventors of the subject invention), it is respectfully submitted that the Examiner’s inferences with respect to newly cited John ‘372 are clearly erroneous.

Before proceeding with more detailed discussion concerning rejected independent claims 22, 36, 38, 42 and 45, the Examiner’s attention is called to what may well be a typographical error of having included dependent claim 33 in this ground

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of rejection – because its parent claim 32 was not included in this ground of rejection. Indeed, the parent independent claim 32 is only rejected in a separate section of the action beginning at page 14. In any event, the following remarks with respect to independent claims 22, 36, 38, 42 and 45 also apply to independent claim 32.

Each of independent claims 22, 32, 36, 38, 42 and 45 requires, *inter alia*, that a set of voltage measurements for analysis be collected from a predetermined measurement period and that the predetermined measurement period begins after a predetermined delay based upon a neurological model following occurrence of a sensory stimulus. That is not the case in any of the cited prior art.

The Examiner asserts that newly cited John '372 teaches a method of monitoring a brain stimulus response during a predetermined measurement period initiated after a predetermined delay following the stimulus based upon a neurological model.

However, as described at paragraph [0016], John '372 is concerned with analyzing depth of anesthesia. A first set of reference, or self-norm, measurements is obtained after the patient has been placed into a desired depth of anesthesia, as determined by a clinical anesthesiologist using his/her clinical judgment. During an operation, a "QEEG system automatically and continually collects on-going EEG" while

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applying stimuli to the patient (John '372, page 2, right-hand side, lines 3-5). Features from the self-norm data are continuously analyzed and displayed as trajectories.

John '372, therefore, clearly requires that EEG data be continually collected and analyzed. That is, John '372 cannot be said to extract and analyze voltage measurements starting from any predetermined period – and clearly not from a predetermined period that begins after a predetermined delay based upon a neurological model. The John '372 continuous collection/analyzing of data is emphasized throughout by reference to the display of output data as trajectories indicating display of continuous measurements and reference to quantitative features being continuously extracted from on-going EEG data (John '372, page 3, left-hand side, lines 29-30). As such, the skilled person learns from John '372 that EEG data is continuously measured and analyzed with respect to reference measurements.

The Examiner refers to paragraph [0034] of John '372 and appears to assert that paragraph [0034] teaches an evoked signal obtained after a delay selected based upon a neurophysiologic model. However, given the clear teaching of John '372 that EEG data is collected and analyzed continually (and not extracted or analyzed for some particular delayed period), this cannot be correct.

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In any case, there is nothing in paragraph [0034] of John '372 to teach or suggest that the signals obtained by the multiplexer are based upon delay selected based upon a neurological model. Paragraph [0034] simply indicates that "signal" is obtained during stimulation, beginning with presentation of the stimuli or after a "preselected delay". There is nothing in John '372 to teach or suggest that the "preselected delay" is based upon a neurological model.

Indeed, and as previously noted at paragraphs 23-24 of Dr. Pomfrett's first declaration (submitted October 30, 2009), EEG measurements are generally concerned with average measurements providing an indication of a general response to stimulus, rather than a specific response of a part of the brain that is active at a specific time after application of a stimulus. As such, processing of measurements obtained at a particular time delay after stimulation using an EEG system simply does not make sense.

Paragraph [0034] of John '372 is clear that measurements are taken during stimulation while a number of stimuli are applied, and paragraph [0035] of John '372 is clear that the obtained measurements, or "Evoked Potentials", are averaged to reduce noise. That is, paragraphs [0034]-[0035] are clear that John '372 is concerned with a general response indicative of general brain activity while a stimulus is being applied.

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This clearly teaches away from specific brain responses obtained using voltage measurements collected over a predetermined measurement period, the predetermined measurement period beginning after a predetermined delay based upon a neurological model following occurrence of a sensory stimulus, as required by each of claims 22, 38 and 42.

Each of independent claims 24, 32, 36, 37, 44, 45 and 46 also requires a delay selected based upon a neurological model. As set out above, John '372 does not disclose any such delay based upon a neurological model and, therefore, each of these claims is patentably distinguished for at least the reasons as set out above.

Given the above-discussed fundamental deficiencies of John '372 – which are not supplied by either of the other cited references – it is not necessary at this time to detail additional deficiencies of this three-way combination of references with respect to other aspects of the rejected claims. Suffice it to note that, as a matter of law, it is impossible to support even a *prima facie* case of “obviousness” unless the cited prior art collectively teaches or suggests each and every feature of each rejected claim.

The rejection of claims 29-31 and 41 under 35 U.S.C. §103 as allegedly being made “obvious” based on Boone '142 in view of John '372, John '335 and Yamazaki '825 is also respectfully traversed.

Claims 29-31 depend from a parent claim already demonstrated as being patentably distinguished from the first three cited references. Yamazaki also fails to supply the deficiencies discussed above.

With respect to independent claim 41, this claim requires collection of the voltage measurements over a predetermined measurement period, user input indicating a time delay is received and the predetermined measurement period being initiated after a predetermined delay based upon the input time delay following occurrence of the sensory stimulus and the collected voltage measurements are compared with reference measurements to determine neurological behavior of the nervous system.

The Examiner asserts that John '372 teaches a method of monitoring a response during a predetermined measurement period initiated after a predetermined delay following a stimulus. However, as indicated above, John '372 teaches that EEG data is continuously monitored and analyzed (i.e., without extraction of data from a relevant delayed period for analysis) and, as such, cannot be said to teach monitoring a response after a predetermined delay as required by claim 41. Furthermore, the general response to stimulus of John '372, obtained by measuring during stimulation and by averaging a large number of responses, is clearly very different from the specific brain response at a particular input time delay according to claim 41. As such, claim 41 is patentably distinguished over the cited documents.

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The rejection of claims 32, 34, 37 and 44 under 35 U.S.C. §103 as allegedly being made “obvious” based on Boone ‘142 in view of John ‘372 is also respectfully traversed.

Independent claim 32 has already been mentioned above and it, like independent claims 37 and 44, requires collection of data from a period that begins after a predetermined delay following occurrence of the sensory stimulus, said predetermined time delay being selected on the basis of a neurological model of the nervous system and the predetermined part of the nervous system for which a response is monitored. As noted above, each of these independent claims requires a delay selected based upon a neurological model and, as noted above, John ‘372 does not disclose any such delay based upon a neurological model – nor do any of the other cited references.

The rejection of claim 35 under 35 U.S.C. §103 as allegedly being made “obvious” based on Boone ‘142 in view of John ‘372 in view of Polydorides is also respectfully traversed.

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Claim 35 depends from claim 32 which has already been noted above as being patentably distinguished from the primary/secondary references. Accordingly, it is not necessary at this time to detail additional deficiencies of this allegedly "obvious" three-way combination of references with respect to the additional aspects of this rejected claim.

The rejection of claim 43 under 35 U.S.C. §103 as allegedly being made "obvious" based on Boone '142 in view of John '372 and Polydorides is similarly respectfully traversed. Independent claim 43 requires that a time sequence of images revealing nervous system responses are obtained using different time delays. Claim 43 is, therefore, patentably distinguished for at least the same reasons as discussed above for claim 41.

The rejection of claim 27 under 35 U.S.C. §103 as allegedly being made "obvious" based on Boone/John '372/John '335 in further view of Vauhkonen, *et al.*, is also respectfully traversed.

Claim 27 depends from independent claim 22 which has already been shown to be patentably distinguished from the first three references above. Vauhkonen does not supply those deficiencies and, accordingly, it is not necessary at this time to discuss

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additional deficiencies of this allegedly “obvious” four-way combination of references with respect to other aspects of this rejected claim.

The rejection of claim 46 under 35 U.S.C. §103 as allegedly being made “obvious” based on Boone ‘142 in view of John ‘372 and in further view of Maddess ‘060 is also respectfully traversed.

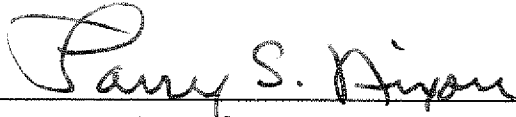
As noted above, claim 46 requires a delay selected based upon a neurological model. Neither John ‘372 nor any of the other cited prior art supplies this feature – and, therefore, it is not necessary at this time to detail additional deficiencies of this allegedly “obvious” three-way combination of references with respect to other aspects of this rejected claim.

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Accordingly, this entire application is now believed to be in allowable condition,
and a formal notice to that effect is earnestly solicited.

Respectfully submitted,

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